

CASE STUDY



TurboScrew compressor assists with Antarctic research

A TurboScrew compressor from CompAir has been used to assist The Alfred Wegener Institute with seismic exploration in the Antarctic.

Capable of operating at temperatures as low as -30°C , The C250TS-12 compressor uses up to 26% less diesel than conventional mobile compressors, and has allowed the research team to benefit from reduced operating costs and extended refueling intervals.

Overview



Client

The Alfred Wegener Institute



Location

Antarctica



Application

Seismic exploration



Products

C250TS-12 TurboScrew compressor



Customer Benefits

Up to 26% fuel savings/high reliability

Application Details

Antarctic ice is more than just frozen water. By studying its structure and motion, scientists can work out how it formed and developed. The same applies to sediments below the ice. Here, controlled explosions are used to create seismic waves, which are then analysed at surface level to create a graphic picture of the ice and its structure.

The C250TS-12 CompAir compressor, supplied by CompAir distributor, Peter Gay Baumaschinen in Bremen, Germany provides the compressed air needed to power a drill, which bores holes up to 20 metres deep in the ice to lay the charges needed to carry out these explosions. "We need a borehole in order to transmit the energy as efficiently as possible into the ice. At polar latitudes, the top 50 to 100 metres of the ice sheets can consist of porous firn," explains Dr. Olaf Eisen, from the Alfred Wegener Institute for Polar and Marine Research (AWI) in Bremerhaven, Germany.

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Benefits at a glance

- ▶ **Lightweight and rugged machine - ideal for the remote environment**
- ▶ **Capable of operating at temperatures as low as -30°C - ideal for the Antarctic, where summer temperatures rarely rise above -10°C**
- ▶ **Best-in-class fuel consumption - uses up to 26% less fuel compared with similar compressors**
- ▶ **Offers extended refueling intervals - essential when the nearest fuel station is several thousand kilometers away**

About CompAir's TurboScrew compressor

The C250TS-12 compressor chosen is part of CompAir's TurboScrew range, which offers numerous design innovations to help improve reliability and deliver significant fuel cost savings.

Compared to conventional portable compressors, the units can deliver up to 26% better fuel efficiency with no loss in pressure, helping to reduce both the cost of diesel used and the frequency that the unit needs to be refueled.

Using CompAir's patented bi-turbo technology, the TurboScrew compressors feature a lightweight and compact Cummins engine. This is engineered with two turbochargers powering a CompAir screw compressor unit, with the addition of an engine exhaust gas turbine to precompress the inlet air before it enters the compression chamber.

This enables CompAir to convert 5% of what would normally be wasted exhaust energy and convert it to motive power to create compressed air.

About the Alfred Wegener Institute

The Alfred Wegener Institute carries out research in the Arctic, the Antarctic and high and mid latitude oceans. It is responsible for coordinating German polar research and provides essential infrastructure for national and international researchers, including the research icebreaker Polarstern, Germany's foremost piece of polar research equipment.

Scientists are based at research stations in the Arctic and Antarctic, some of which, such as Neumayer Station and the AWIPEV Research Base, are occupied all year round.

The logistics team at the AWI coordinates other large items including polar aircraft and underwater research equipment. Dive missions are organised by the AWI's Centre for Scientific Diving. The Institute also maintains libraries, a range of databases and many software solutions either used or developed by the Institute itself.



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